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EXAMINER	
SAINT CYR, LEONARD	

ART UNIT	PAPER NUMBER
2626	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/629,486	BEN ET AL.	
	Examiner	Art Unit	
	LEONARD SAINT CYR	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 June 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19 and 21-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19 and 21-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 06/26/08 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claims 1- 19, and 21 - 37 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argues that neither Weare et al., nor Laroche teach a plurality of filters have center frequencies logarithmically spaced apart from each other with a logarithmic additive factor of 1/12 (Amendment, pages 10 – 14).

The examiner agrees, but this new limitation is now rejected in view of McEachern (US Patent 5,615,302).

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1 - 4, 6– 16, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weare et al., (US Patent 7,065,416) in view of McEachern (US Patent 5,615,302).

Regarding claim 1, 6, 21, 22, 23 Weare et al. discloses a method for use in recognizing the content of a media program (see col. 6, lines 22-27), said method comprising the steps of: filtering each first frequency domain representation of blocks of said media program using a plurality of filters to develop a respective second frequency domain representation of each of said blocks of said media said second frequency domain representation of each of said blocks having a reduced number of frequency coefficients with respect to said first frequency domain representation program (see col. 16, lines 47, fig. 7, element 750, describing a critical band filtering step which can be modeled as a filter bank, thus indicating that a plurality of filters exist);

grouping frequency coefficients of said second frequency domain representation of said blocks to form segments (see fig. 8A element 804, col. 17, lines 57-60, and col. 16, lines 25-30, where critical band filtering forms several critical bands, interpreted by the examiner as groups); and selecting a plurality of said segments (see col. 18, lines 10-15, where the peaks with the highest energies are selected);

comparing selected segments to features of stored programs to identify thereby said media program ("classification of media entities"; Abstract, lines 3 -7).

However, Weare et al., do not specifically teach that said plurality of filters have center frequencies logarithmically spaced apart from each other with a logarithmic additive factor of 1/12.

McEachern teaches this 1/12 octave filter center frequency spacing results in logarithmically spaced filters that are very closely centered at the frequencies of the linearly spaces harmonics (col.12, line 66 – col.13, line 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use logarithm filters as taught by McEachern in Weare et al., because that would help better recognize the media content.

Regarding claim 2, Weare et al. further disclose that each grouping of frequency coefficients of said second frequency domain to form a segment represents blocks that are consecutive in time in said media program (see. Col. 18, lines 10-15, since the peaks with highest energies are selected it follows that the segments may be contiguous in time if two highest peaks are positioned consecutively).

Regarding claim 3, Weare et al. further disclose that said plurality of filters are arranged in a group that processes a block at a time, the portion of Said second frequency domain representation produced by said group for each block forms a frame, and wherein at least two frames are grouped to form a segment (see col. 18, where peaks last for multiple frames, thereby having a segment at least two frames).

Regarding claim 4, Weare et al. further disclose that said selected segments correspond to portions of said media program that are not contiguous in time (see col.

18, lines 10-15, since the peaks with the highest energies are selected, it follows that the segments may not be contiguous if a peak that does not meet the criteria "highest" is positioned between two "highest" peaks).

Regarding claim 7, Weare et al. further disclose that the segments selected in said selecting step are those that have largest minimum segment energy (see col. 18, lines 10-15).

Regarding claim 8, Weare et al. further disclose that the segments selected in said selecting step are selected in accordance with prescribed constraints such that said segments are prevented from being too close to each other (see col. 18, line 66 - col. 19 line 2, where only selecting peaks that last for more than specified number of frames prevents the peaks from being too close).

Regarding claim 9, Weare et al. further disclose that the segments selected in said selecting step are selected for portions of said media program that correspond in time to prescribed search windows that are separated by gaps (see col. 19, lines 5-10 where frames correspond to search windows, and the frames are individual thus, there is a separation by gaps).

Regarding claim 10, Weare et al. further disclose that the segments selected in said selecting step are those that result in the selected segments having a maximum

entropy over the selected segments (see col. 18, lines 12- 15, where the most energetic peaks are chosen, thus choosing the most entropic peaks).

Regarding claims 11- 13, Weare et al. further disclose that the step of normalizing said frequency coefficients in said second frequency domain representation after performing said grouping step, said normalization being performed on a per-segment basis; wherein said normalization includes performing at least a preceding-time normalization; an L2 normalization ("normalizing the sum"; see col. 16, lines 3-6).

Regarding claim 14, Weare et al. further disclose that the step of storing said selected segments in a database in association with an identifier of said media program (see col. 7, lines 59-65, where music is stored in a database and for generating play lists thus an identifier must be associated with the stored data).

Regarding claim 15, Weare et al. further disclose that the step of storing in said database information indicating timing of said selected segments (see col. 9, lines 16-21, where classifying the tempo in the database indicates timing of media segment).

Regarding claim 16, Weare et al. further disclose that said first frequency domain representation of blocks of said media program is developed by the steps of: digitizing an audio representation of said media program to be stored in said database (see col. 16, lines 41-44); dividing the digitized audio representation into blocks of a prescribed

number of samples (see col. 16, lines 41-44, where the audio representation is divided into frames); smoothing said blocks using a filter (see col. 16, lines 45-47); and

converting said smoothed blocks into the frequency domain, wherein said smoothed blocks are represented by frequency coefficients (see col. 16, lines 39- 41).

Regarding claim 18, Weare et al. further disclose that each of said smoothed blocks are converted into the frequency domain in said converting step using a Fast Fourier Transform (FFT) (see col. 16, lines 39-41 and col. 23, lines 52-54).

4. Claims 24 – 29, 31, 32, 34 - 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Laroche (US Patent 6,453,252) in view of McEachern (US Patent 5,615,302).

Regarding claims 24, 34, 35, Laroche discloses a method for use in recognizing the content of a media program, said method comprising the steps of filtering each first frequency domain representation of blocks of said media program using a plurality of filters to develop a respective second frequency domain representation of each of said blocks of said media said second frequency domain representation of each of said blocks having a reduced number of frequency coefficients with respect to said first frequency domain representation program (see fig. 1 and col. 2, lines 36-48);

grouping frequency coefficients of said second frequency domain representation of said blocks to form segments(see col. 2, lines 46-48); and searching a database for substantially matching segments, said database having stored therein segments of

media programs and respective corresponding program identifiers (see col. 4, lines 33-34).

However, Laroche et al., do not specifically teach that said plurality of filters have center frequencies logarithmically spaced apart from each other with a logarithmic additive factor of 1/12.

McEachern teaches this 1/12 octave filter center frequency spacing results in logarithmically spaced filters that are very closely centered at the frequencies of the linearly spaces harmonics (col.12, line 66 – col.13, line 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use logarithm filters as taught by McEachern in Laroche, because that would help better recognize the media content.

Regarding claim 25, Laroche further discloses that the step of indicating that said media program cannot be identified when substantially matching segments are not found in said database in said searching step (see col. 4, lines 38-42, where the value indicates if there is a true match or not).

Regarding claim 26, Laroche further discloses that said data base includes information indicating timing of segments of each respective media program identified therein (see col. 4, line 64- col. 5, line 5), and wherein a match may be found in said searching step only when the timing of said segments produced in said grouping step substantially matches the timing of said segments stored in said database (see col. 5,

lines 5-10, where fingerprints taken at other maxima will not fit, thus the match will only be found when the timing segments match).

Regarding claim 27, Laroche further discloses that said matching between segments is based on the Euclidean distances between segments (see col. 4, lines 34-38).

Regarding claim 28, Laroche further discloses that the step of identifying said media program as being the media program indicated by the identifier stored in said database having a best matching score when substantially matching segments are found in said database in said searching step (see col. 4, lines 38-42, where the match is determined by the smallest value, where larger values may match substantially, but are not indicated as the best match).

Regarding claim 29, Laroche further discloses that the step of determining a speed differential between said media program and a media program identified in said identifying step (see col. 3, lines 64-67, where two signals can differ by a slowly time-varying function).

Regarding claim 31 Laroche further discloses: repeating said filtering, grouping, searching and identifying; and determining, in the event of another match, whether said identified program is the same program determined prior to said repetition or a different

program (see col. 5, lines 29- 32, where the program is implemented in software stored on a computer readable medium, allowing the program to be repeated whenever necessary).

Regarding claim 32, Laroche further discloses that said determining step is based on an overlap score (see claim 6, where an identifying method is claimed based on a segment divided into overlapping frames).

Regarding claim 36, Laroche further discloses that said first frequency domain representation of said media program comprises a plurality of blocks of coefficients corresponding to respective time domain sections of said media program (see col. 2, lines 36-40) and said second frequency domain representation of said media program comprises a plurality of blocks of coefficients corresponding to respective time domain sections of said media program (see col. 2, lines 42-48).

Regarding claim 37, Laroche discloses a computer readable storage arranged to store segments derived from, and representative of, various media programs, said segments of each respective one of said media programs being stored in said database so as to be associated with a respective media program identifier (see col. 4, lines 33-38, where the database is composed of known material, which must have an identifier);

segments is developed by filtering a first frequency domain representation of said media program using a plurality of filters to develop a second frequency domain

representation of said media program having a reduced number of frequency coefficients in said second frequency domain representation with a unique to said first frequency domain representation (see fig. 1 and col. 2, lines 36-48);

grouping ones of said second frequency domain representation to form said segments (see col. 2, lines 46-48).

However, Laroche et al., do not specifically teach that said plurality of filters have center frequencies logarithmically spaced apart from each other with a logarithmic additive factor of 1/12.

McEachern teaches this 1/12 octave filter center frequency spacing results in logarithmically spaced filters that are very closely centered at the frequencies of the linearly spaces harmonics (col.12, line 66 – col.13, line 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use logarithm filters as taught by McEachern in Laroche, because that would help better recognize the media content.

5.Claims 5, 17, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weare et al., (US Patent 7,065,416) in view of McEachern (US Patent 5,615,302).

Regarding claim 5, Weare et al. in view of McEachern do not specifically disclose wherein said plurality of filters includes at least a set of triangular filters. However using triangular filters as a smoothing filter is well known in the art, because the greater the parameter, the greater the degree of smoothing, providing good suppression of higher

frequencies. Thus it would have been obvious to one of ordinary skill in the art to use triangular filters for smoothing.

Regarding claim 17, Weare et al. in view of McEachern do not specifically disclose that said smoothing step is a Hamming window filter. However this feature is well known in the art as indicated by the applicant's disclosed specification. Applicant discloses that

those of ordinary skill in the art will recognize that Hamming window filter or Hanning window may be employed for smoothing. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ Hamming window filter.

Regarding claim 19, Weare et al. in view of McEachern do not specifically teach that each of said smoothed blocks are converted into the frequency domain in said converting step using a Discrete Cosine Transform (DCT). However this feature is well known in the art as indicated by the applicant's disclosed specification. Applicant discloses that those of

ordinary skill in the art will recognize that discrete cosine transform can be used in the place of fast Fourier transform to covert the time domain to frequency domain (see page 11, lines 15-17). Thus it would have been obvious to one of ordinary skill in that art at the time the invention was made to use discrete cosine transform to convert blocks from the time domain to frequency domain.

6. Claims 30, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Laroche (US Patent 6,453,252) in view of McEachern (US Patent 5,615,302).

Regarding claim 30, Laroche in view of McEachern do not disclose wherein said matching score for a program P.sub.i is determined by Pi=Izj=Izf(Sj'-Sj(Pi)). However this feature is well known in the art. This equation is a measure of the average distance. It produces the same results as calculating the Euclidean distance. Thus it would have been obvious to one of ordinary skill in the art to use this equation to produce a matching score.

Regarding claim 33, Laroche in view of McEachern do not disclose overlap score is calculated between said program determined prior to said repetition, P0, and said program determined during said repetition, P1, is calculated as Overlap score=(t.sub.end- t.sub.begin)/(end time of PI-beginning time of P1) where t.sub.end is min(end time of P0, P1); and t.sub.begin is max(beginning time of P0, P1). However this feature is well known in the art. The overlap score is an indication of how much time is shared by two items. This is an obvious calculation of overlap, thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use this equation to calculate overlap.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEONARD SAINT CYR whose telephone number is (571)272-4247. The examiner can normally be reached on Mon- Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (5712727602. The fax phone number for the organization where this application or proceeding is assigned is (571)-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LS
07/03/08

/Richemond Dorvil/
Supervisory Patent Examiner, Art Unit 2626